From: Mark Rockwell [mailto:mrockwell@stopextinction.org]
Sent: Friday, January 27, 2012 10:00 AM
To: Grindstaff, Joe@DeltaCouncil
Subject: Follow-up on the request for Dr. Rosenfield to Present to the Council

Hi again, Joe. Attached is the ppt that Dr. Rosenfield has given to the state and federal agencies, as well as the consultants in BDCP. Take a look to see what has been presented relative to the current BDCP status of flows. Of course, to make good sense of it you need Jon to present the information and be able to answer questions. This would be very useful for the Council.
Mark

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Fresh Water Flows in the Central Valley:

A primer on their importance, status, and projected changes under the BDCP

January 10, 2012

Freshwater flows *define* rivers and estuaries

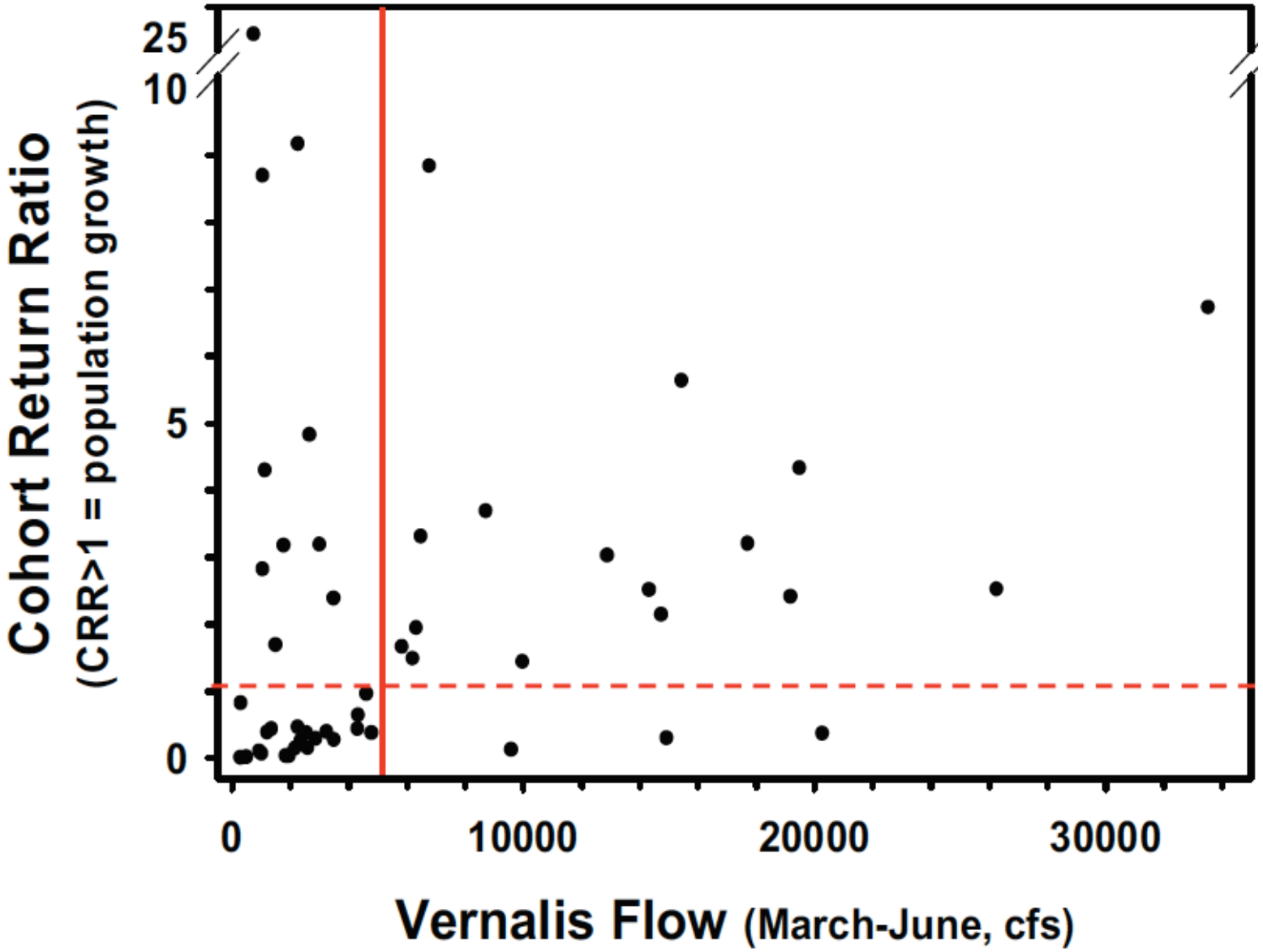
Fresh water is an integral part of the definition of an estuary and so deserves primacy in all aspects of estuarine ecology, as a matter of first principles [Estevez 2000]

Flow is a 'master variable' … in aquatic systems in the sense that it is responsible for creation and maintenance of many habitat features affecting biological potential. [Flow] structures biodiversity and ecological function of riverine and estuarine systems…" [EA App. A-28]

Water flow through the Delta is one of the primary drivers of ecosystem function [CDFG 2010]

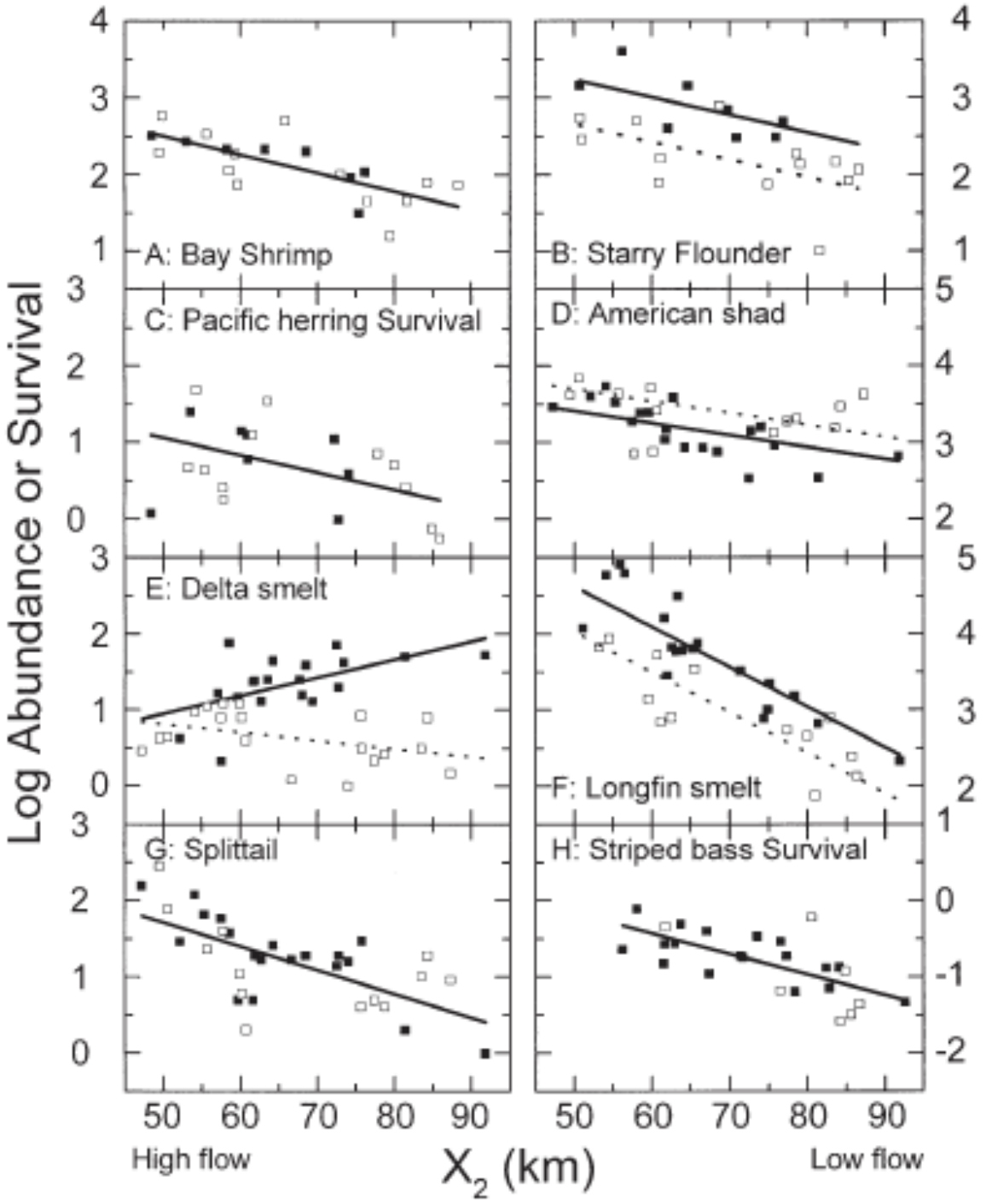
[F]low in the Delta is one of the primary determinants of habitat availability and one of the most important components of ecosystem function [USDOI 2010]

San Joaquin: Positive effects of Delta inflow are evident 2.5 years later when fall run salmon return



Delta Outflow:

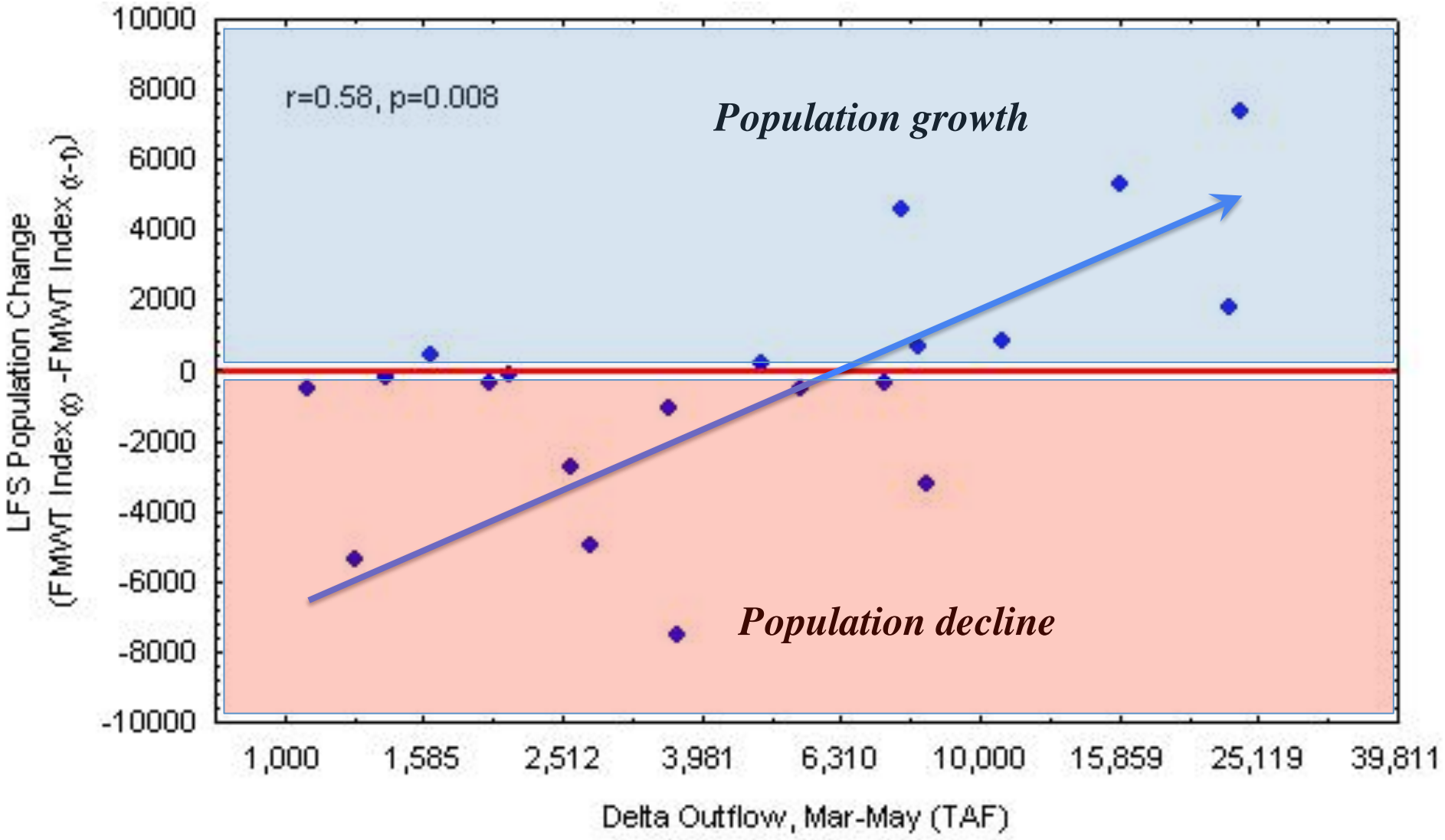
Widespread, strong, significant, and persistent positive response to fresh water outflow



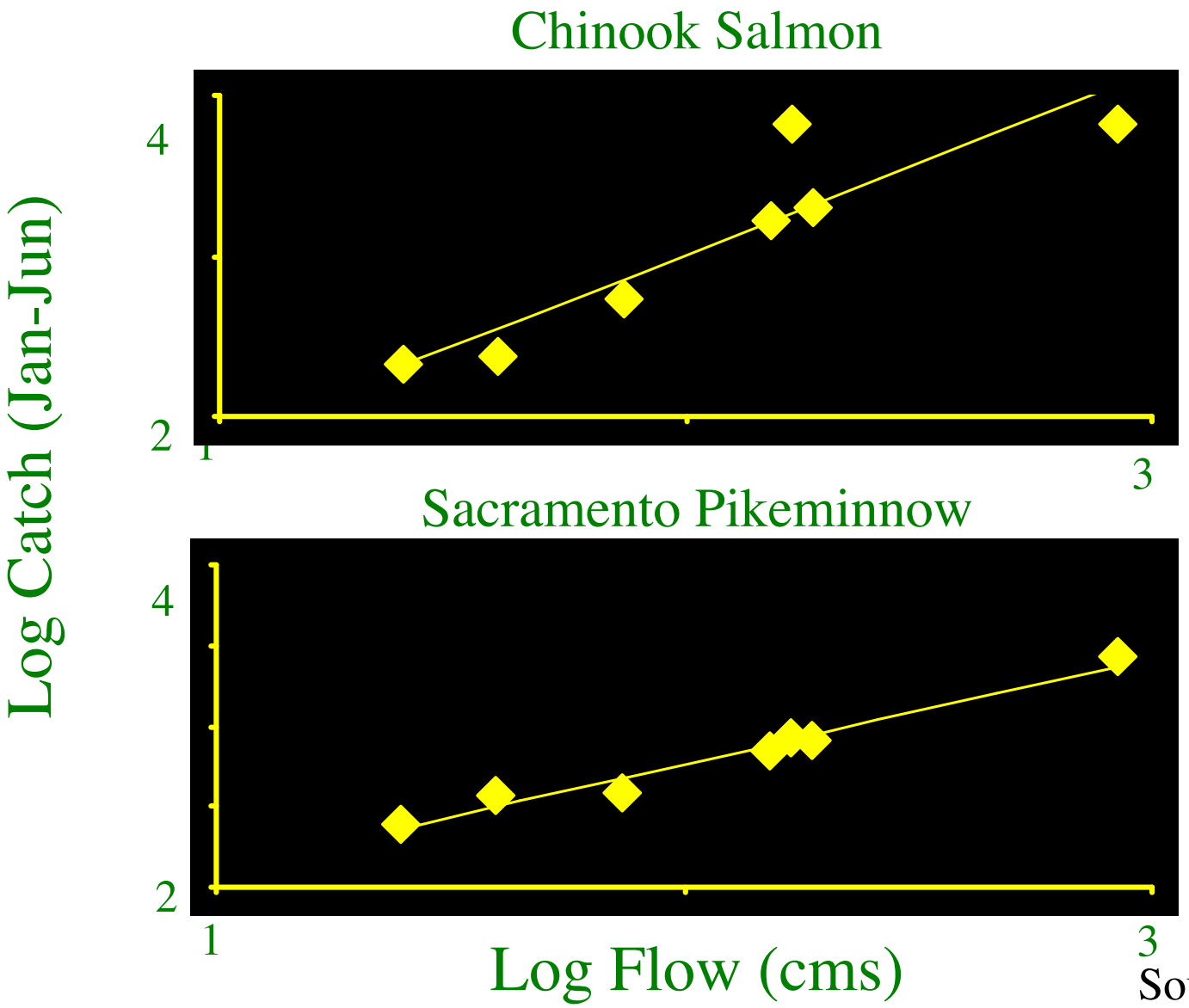
Source: Kimmerer 2002

Longfin Smelt: Population growth (still) strongly correlated with winter-spring Delta outflow

(1988-2009 (post-clam) data)



Floodplain Habitat: Benefits are flow dependent



Source: DWR

Fresh water flows are currently inadequate

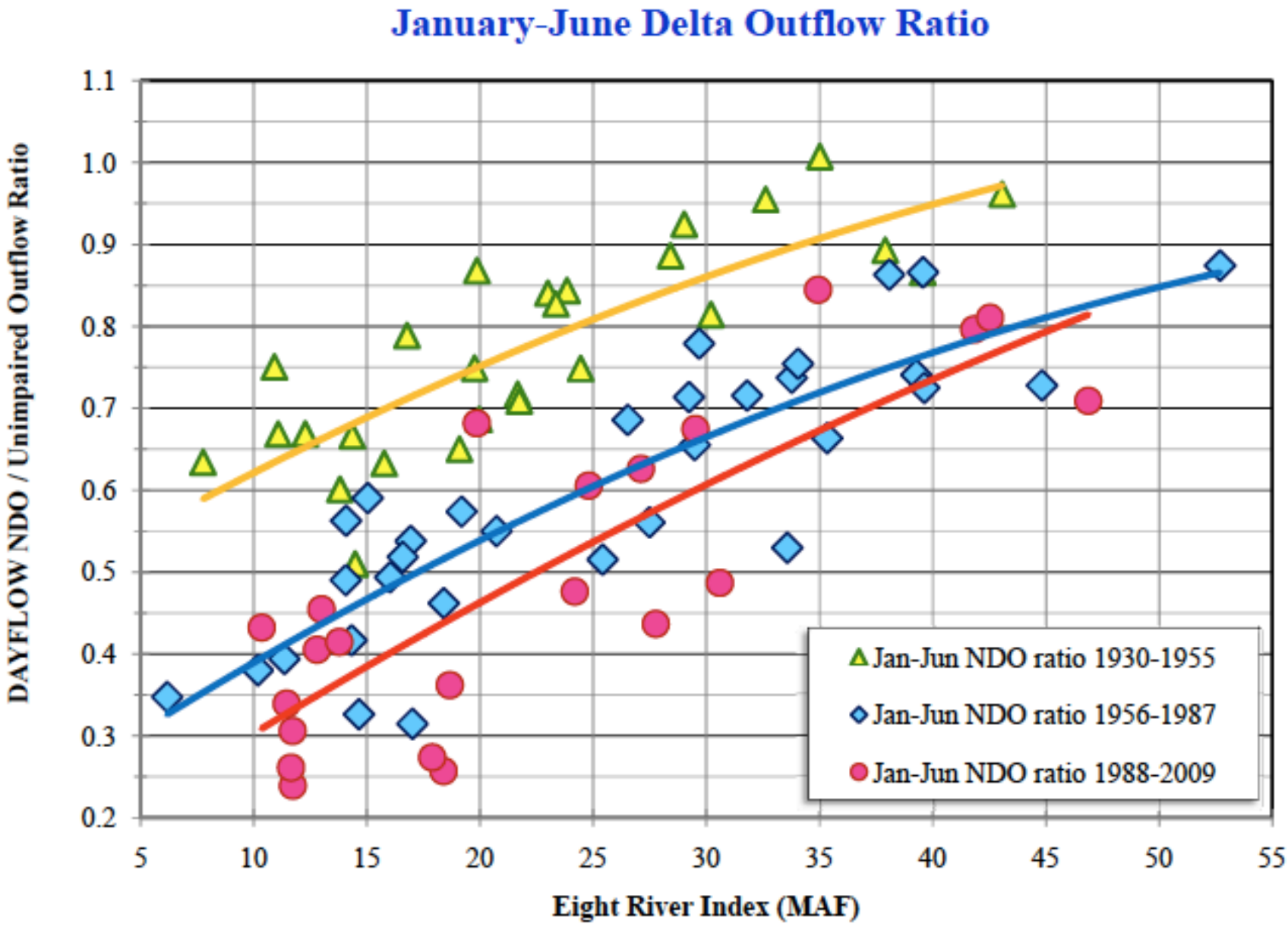
Recent Delta flows are insufficient to support native Delta fishes for today's habitats. ... Flow and physical habitat interact in many ways, but they are not interchangeable [SWRCB 2010, emphasis added]

Recent Delta flows are insufficient to support native Delta fishes in habitats that now exist in the Delta. [CDFG 2010]

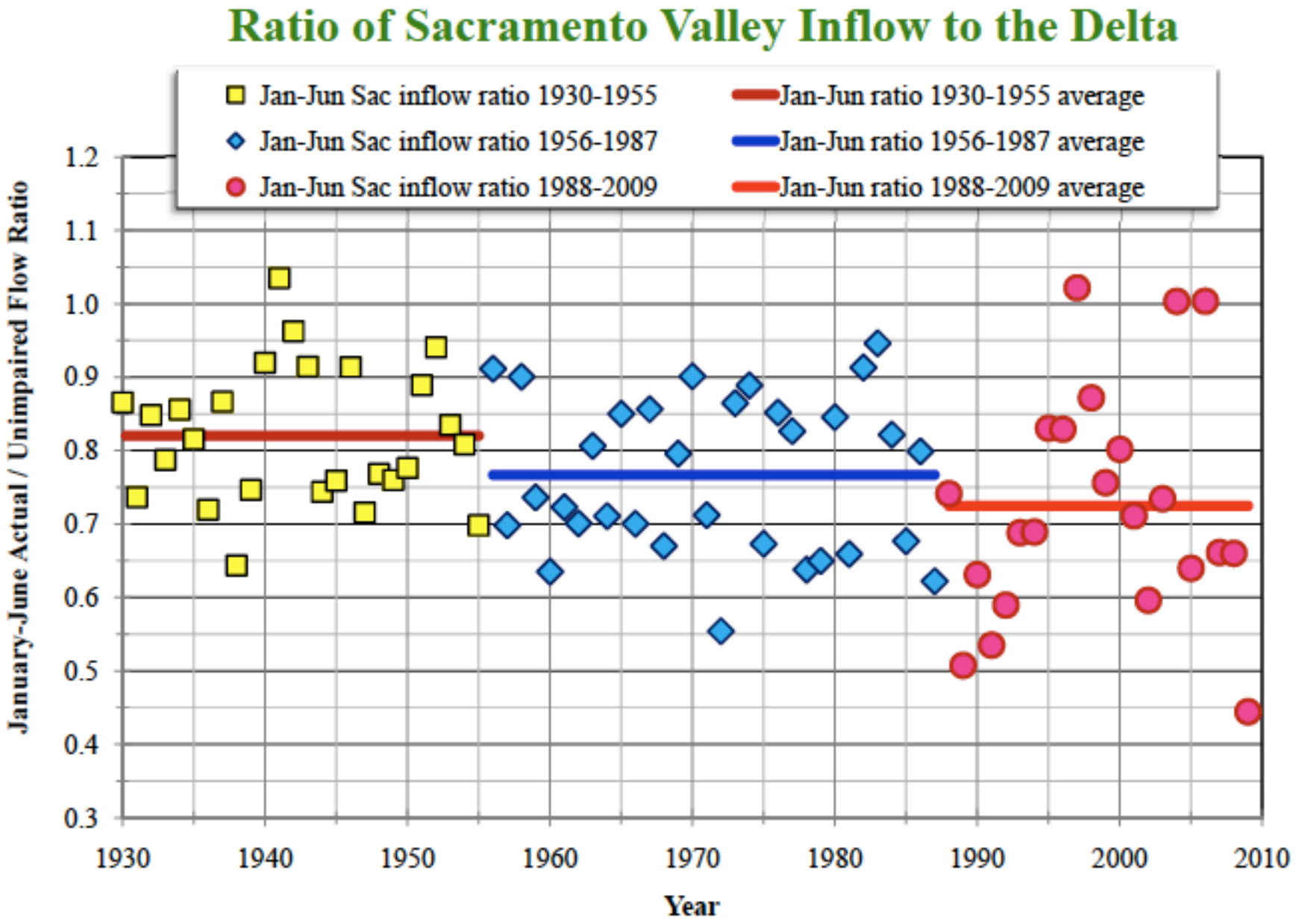
Recent flow regimes both harm native species and encourage non-native species [Environmental Flows Expert Panel 2010]

Changes in Delta flows have caused changes in the physical habitat components of the system, which have contributed to the decline of the Delta ecosystem [USDOI 2010]

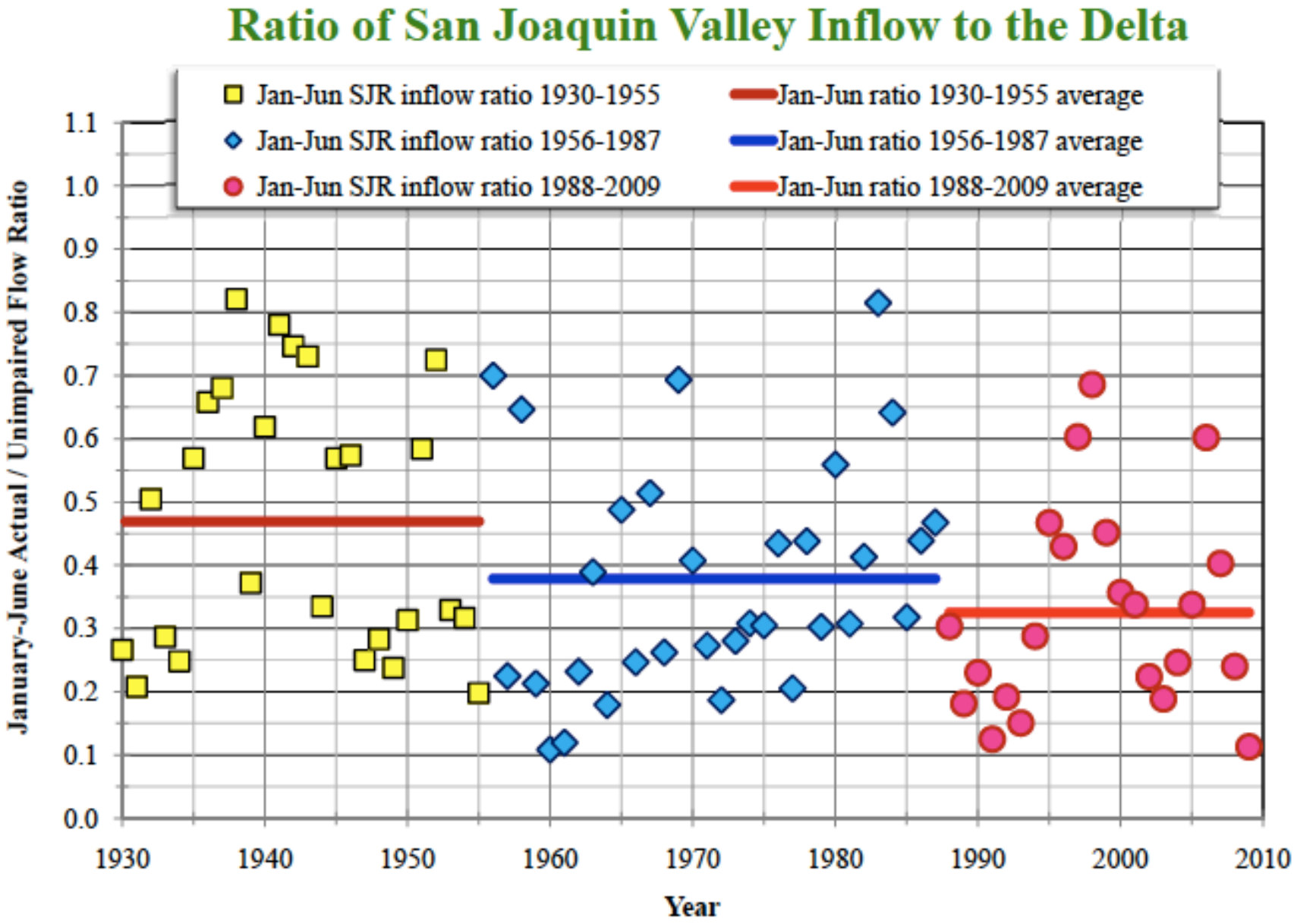
Delta Outflow: Persistently reduced



Sacramento Inflow: Severely impaired



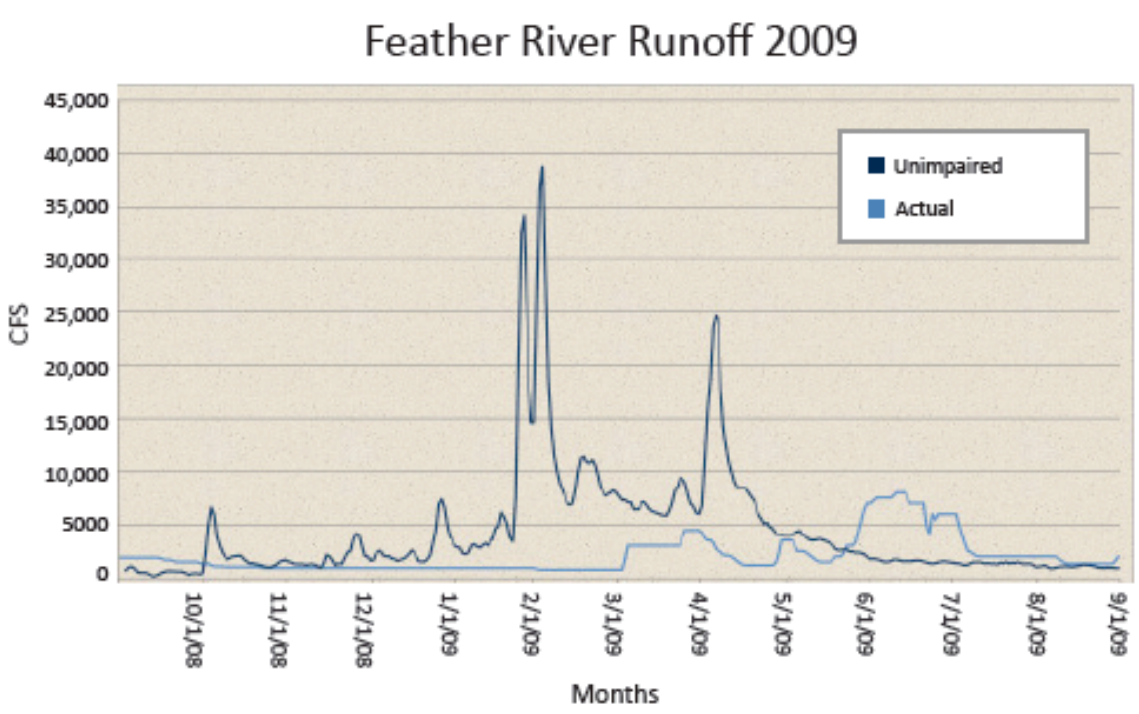
San Joaquin Inflow: Abysmal

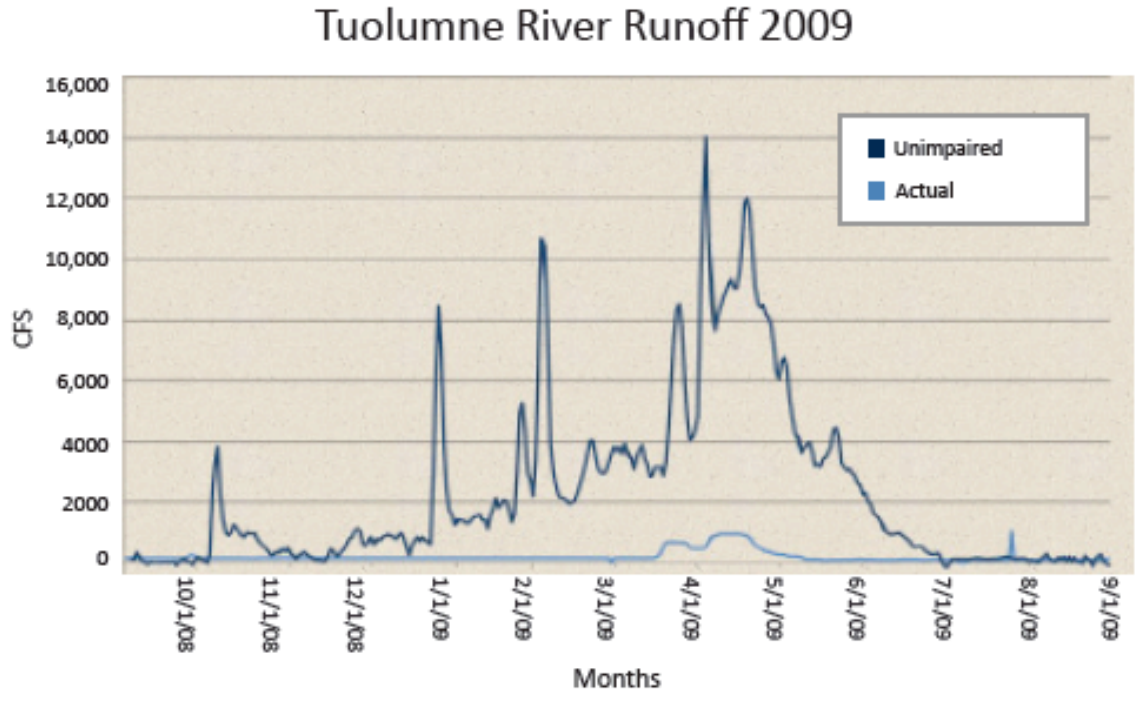


The San Joaquin “River”

Flatlining Rivers:

"Water flow stabilization harms native species and encourages non-native species" [CDFG 2010]





The BDCP Conservation Strategy does little to improve freshwater flows – in many cases, it will make flow conditions ***worse***

- No fall X^2 provision
  - *57% reduction in November outflow under PP*
- Reduced winter-spring X^2
  - *33% reduction in April outflow under PP*
  - *D-1641 sets an unrealistically low bar for flows*
- Inadequate San Joaquin flows
  - *No changes from baseline operations were simulated*
- Reduced Sacramento flows
  - *Increased temperatures and redd dewatering upstream compared to baseline*
  - *Decreased transport flows in lower river*

Flow conditions under BDCP *discourage* recovery –
Examples Part I

- Fall estuarine habitat (Fall X^2)
  - *The **delta smelt** fall abiotic habitat index was lower under the preliminary proposal relative to existing biological conditions…"* [EA App. C, 2011]
  - *Substantial reductions in delta outflow in the BDCP proposed project…are likely to increase the risk that **delta smelt** will become extinct* [DOI, Sept. 2010]
- Reduced winter-spring Delta outflow (Spring X^2)
  - *"Reduced Sacramento River flows may reduce **longfin smelt** and **Delta smelt** larval transport, with the potential to reduce survival for **longfin smelt**"* [EA App. C, 2011]

Flow conditions under BDCP *discourage* recovery – Examples Part II

- San Joaquin inflows unchanged
  - *No contribution to **spring run Chinook** recovery*
- Inadequate Sacramento flows
  - *[One model found] … **winter-run** escapement would be reduced under PP…for each of the time steps…while [another model] predicted little difference between the PP and the EBC…* [App. G]
  - *…the BDCP will not have any biologically meaningful flow-related effects on larval rearing habitat for **splittail** in the Sacramento River.* [App. C 6.2]
  - *... the effects of the proposed project on the exceedence of temperature thresholds [for **sturgeon**] are mostly adverse…*
- Reduced tributary flows
  - *Higher T°s and ~40% more dewatering of **lamprey** nests on Feather River*

Summary

- Fresh water flow is the dominant force controlling riverine and estuarine ecosystem processes and covered species populations – *flows define fish species' habitat*
- Fresh water flows into, through, and out of the Delta are already severely impaired (in magnitude and timing) by Project operations
- BDCP does not restore fresh water flow volumes and timing to more natural conditions – in some cases, flow conditions are worse under the preliminary project
- Appendices A-G of the EA reveal *significant negative impacts to covered species** from the BDCP Conservation Strategy – impacts that must be more than mitigated if BDCP is to achieve the "contribute to recovery" standard.

** We believe the current EA significantly understates the potential negative impacts of flow reductions projected under the current BDCP proposal*

For more details regarding specific flows required to support and recover covered species:

EXHIBIT TBI-1

BEFORE THE STATE WATER RESOURCES CONTROL BOARD

WRITTEN TESTIMONY OF

JONATHAN ROSENFIELD, PH.D.
CONSERVATION BIOLOGIST
THE BAY INSTITUTE

CHRISTINA SWANSON, PH.D.
EXECUTIVE DIRECTOR AND CHIEF SCIENTIST
THE BAY INSTITUTE

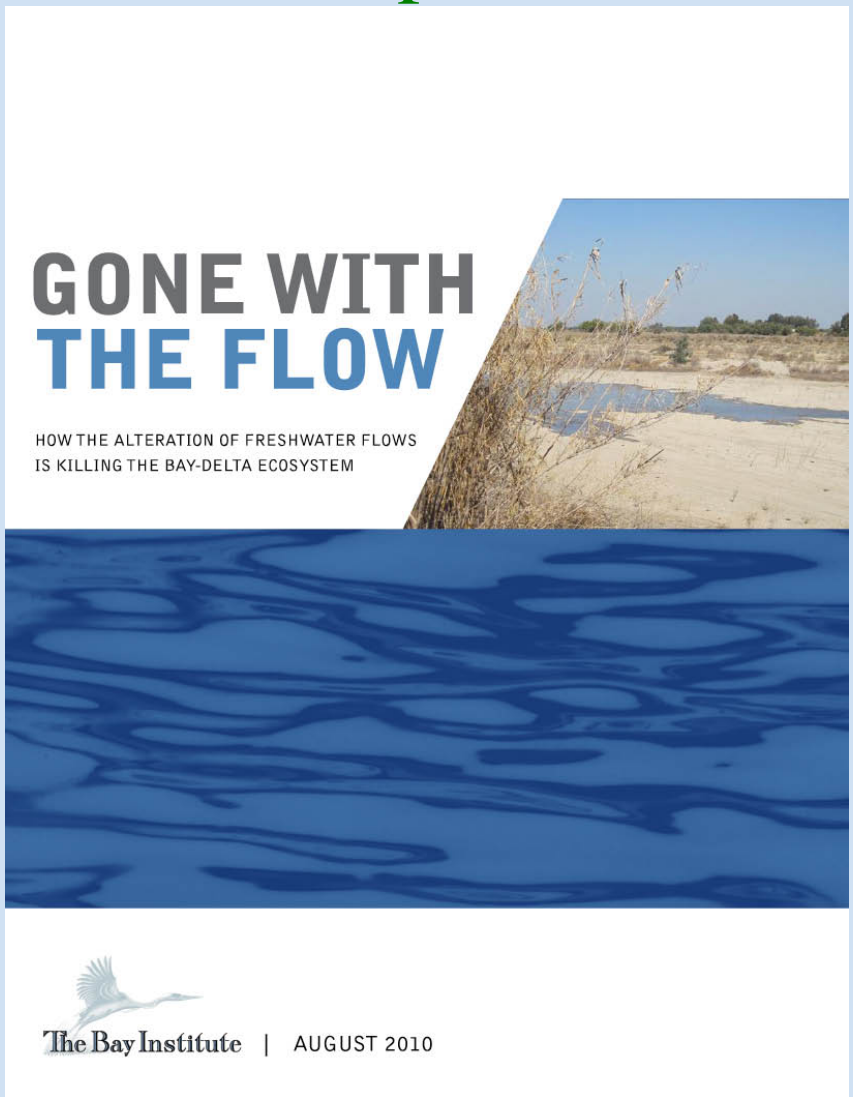
JOHN CAIN
DIRECTOR, CALIFORNIA FLOOD MANAGEMENT
AMERICAN RIVERS

CARSON COX
SENIOR WATER RESOURCES SCIENTIST
NATURAL HERITAGE INSTITUTE

REGARDING FLOW CRITERIA FOR THE DELTA NECESSARY TO PROTECT PUBLIC TRUST RESOURCES: GENERAL ANALYTIC FRAMEWORK

PREPARED FOR:

THE BAY INSTITUTE
AMERICAN RIVERS
ENVIRONMENTAL DEFENSE FUND
NATURAL HERITAGE INSTITUTE
NATURAL RESOURCES DEFENSE COUNCIL



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